

Preliminary Amendment

Applicant: Darrel Bloomquist et al.

Filed: Herewith

Docket No.: 10013887-3

Title: METHOD AND ARTICLE FOR CONCENTRATING FIELDS AT SENSE LAYERS

REMARKS

This Preliminary Amendment modifies the above identified Application filed herewith. The Preliminary Amendment adds new claims and is also responsive to the Non-Final Office Action mailed June 5, 2003, in the Parent Application, in which claims 1-5, 10-17, 19, 20, 27 and 28 were rejected, claims 6-9, 18, 21, 29 and 30 were objected to, and claims 22-26 were allowed.

In the Parent Application, to expedite the allowance and issuance of claims 6-9, 18, 21-26, 29 and 30, the rejected claims 1-5, 10-17, 19, 20, 27 and 28 were cancelled from the application. Claims 31-45 of the Parent Application were withdrawn from consideration as being drawn to a non-elected invention, and are currently being prosecuted in copending Divisional Patent Application Serial No. 10/652,446 (Attorney Docket No. 10013887-2), filed August 29, 2003.

This Preliminary Amendment addresses the claim rejections presented in the Non-Final Office Action mailed June 5, 2003. Claims 1, 8, 9, and 16 have been amended, claims 3-7, 17, 18, and 22-45 have been canceled from the application, and claims 46-59 have been added. **Applicants request that filing fees be calculated on the basis of entry of this Preliminary Amendment.** Claims 1, 2, 8-16, 19-21 and 46-59 remain in the application and are presented for consideration and allowance.

Objection to the Drawings

In the Office Action mailed June 5, 2003, Figure 1a was objected to as requiring a legend such as --Prior Art-- because only that which is old is illustrated.

With this Amendment, Figure 1a is amended to add the legend --Prior Art-- as indicated in red ink on the accompanying Annotated Sheet Showing Changes. Applicants respectfully request approval of the drawing correction and withdrawal of the objection to the drawings. In anticipation of the Examiner's approval of the drawing change, a Replacement Sheet incorporating the change is also submitted herewith.

Objection to the Claims

Claim 16 was objected to because in claim 16 at line 6, "polls" should be --poles--.

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Claim 16 has been amended as suggested by the Examiner. Accordingly, withdrawal of the objection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 102

In the Office Action mailed June 5, 2003, in the Parent Application, claims 1-5, 10-17, 19-20, 27 and 28 were rejected under 35 U.S.C. §102(e) as being anticipated by Schwarzl (U.S. Patent No. 6,510,078).

Regarding claims 1-5, 10-17, 19 and 20, Schwarzl is said to disclose in Figures 1a and 1b, a written line structure for a magnetic memory device having a magnetic field sensitive memory cell (referencing element SE and col. 1, lines 13-14) comprising a cladding layer (J) adjacent a back surface, two sides surfaces and a portion of a front surface of a write conductor (L2) which has a first width, the cladding layer having a thickness in the range of 1 to 50 nm (referencing col. 4, lines 17-19) and including a layer of magnetic material which is selected from the group consisting of NiFe, CoFe, Co, FeN, CoZrNb, CoTaNb and CoHfNb (referencing col. 3, lines 21-26); a barrier (8 of Figs. 6a-8) layer between the write conductor and the layer of magnetic material (referencing col. 9, lines 3-8), wherein the memory cell is a spin dependent tunneling device (referencing col. 1, line 40-50) or a spin valve device (referencing col. 1, lines 65-68) or a giant magnetoresistive device (referencing col. 1, lines 20-22). Also, Fig. 1a is said to show the cladding forming two pole pieces being spaced from each other by a second width being less than the first width; the memory cell (SE) having a third width being less than the second width and being positioned between the pole pieces.

Regarding claims 27-28, the apparatus as described above is said to perform a method for concentrating a magnetic field in a sense layer of a magnetic memory cell as recited in claims 27-28.

As amended, independent claim 1 describes a write line structure for a magnetic memory device having a magnetic field sensitive memory cell. The write line structure comprises a write conductor having a front surface adjacent the memory cell, a back surface, and two side surfaces. A cladding layer is adjacent the back surface, the two side surfaces, and a portion of the front surface of the write conductor. The cladding layer adjacent to the front surface of the write conductor forms two magnetic pole pieces, the pole pieces spaced apart from each other by a distance less than a width of the memory cell.

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As seen in Schwarzl, the lower parts J3 of yolk J are not spaced from each other by a distance less than a width of the memory element SE. Rather, **the lower parts J3 of yolk J are spaced apart by a distance which is greater than the width of memory element SE.** Clearly, Schwarzl does not show, teach or suggest the invention of amended independent claim 1. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. §102(e) is respectfully requested.

Of the claims depending from amended independent claim 1, dependent claims 3-7 have been cancelled from the application. Remaining dependent claims 2 and 8-15 depend either directly or indirectly from amended independent claim 1 which is allowable for the reasons discussed above. Accordingly, dependent claims 2 and 8-15 are also in allowable condition. Therefore, Applicants withdrawal of the rejection of dependent claims 2 and 10-15 under 35 U.S.C. §102(e) is respectfully requested.

Regarding amended independent claim 16, what is now claimed is a write line structure for a magnetic memory cell. The write line structure comprises a write conductor having a front surface spacing the memory cell, a back surface, and two side surfaces. The write conductor has a first width. A cladding layer is disposed adjacent a portion of the front surface of the write conductor. The cladding layer terminates at first and second poles adjacent the front surface of the write conductor. The first and second poles are separated from each other by a second width. A data storage layer is operatively positioned adjacent the cladding layer. The data storage layer has a third width. The second width separating the first and second poles is less than the third width.

As discussed above with respect to amended independent claim 1, **Schwarzl does not disclose a write line structure where the width separating the poles formed by yolk elements J3 is less than the width of the memory element SE.** Accordingly, Schwarzl does not show, teach or suggest the invention claimed in amended independent claim 16. Therefore, withdrawal of the rejection of amended independent claim 16 under 35 U.S.C. §102(e) is respectfully requested.

Of the claims depending from amended independent claim 16, dependent claims 17 and 18 have been cancelled from the application. Remaining dependent claims 19-21 depend either directly or indirectly from amended independent claim 16 which is allowable for the reasons discussed above. Accordingly, dependent claims 19-21 are also in allowable

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CONCLUSION

It is believed that all claims 1, 2, 8-16, 19-21 and 46-59 of this application are in condition for allowance. A notice to that effect is respectfully requested.

Any inquiry regarding this Preliminary Amendment should be directed to either Matthew B. McNutt, Esq. at Telephone No. (512) 231-0531, Facsimile No. (512) 231-0540 or Phillip Lyren, Esq. at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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IN THE DRAWINGS

Please amend Figure 1a to add the legend --Prior Art-- as indicated in red ink on the accompanying Annotated Sheet.